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MAKING IT HAPPEN

Date 8/6/01

Number of pages including cover sheet 5

TO *Rand Crafts*
IPSC

Phone
Fax Phone

RE: Valley Revised Title V Permit

CC: Bruce Moore

FROM: *Tim Conkin*
Los Angeles Department of Water and Power

111 N. Hope Street
Room 1050
Los Angeles, CA 90012

Phone (213) 367-0443
Fax Phone (213) 367-4710

REMARKS: ☐ *Urgent* ☒ *For your review* ☐ *Reply ASAP* ☒ *Please Comment*

Rand,

I went to an EPA sponsored public meeting on New Source Review. Take a look at the paragraph I designate with an arrow. Let me know if this may impact the IPSC upgrade.

Thank You

Docket A-2001-19
Document II-A-01

NSR 90-Day Review
Background Paper

June 22, 2001

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existing sources trigger new source review requirements are complex, and involve making distinctions between routine and non-routine maintenance, and in calculation of emissions prior to and after changes are to be made. As a result, it may be appropriate to examine whether repairs that restore lost capacity and component upgrades that improve efficiency may be discouraged by NSR. It may also be appropriate to examine the extent to which NSR rules concerning the modification of existing facilities promote or deter investment in new utility and refinery generation capacity, energy efficiency, and environmental protection. Some have argued that the modification rule deters modifications at existing plants, especially where the emissions increase is significant, but the increase in generating capacity is not.

In a report to the Secretary of Energy[53], the National Coal Council (NCC) examined data in the North American Electric Reliability Council's GADS database, and found that coal-fired units over 20 years of age (approximately two-thirds of total coal-fired generating capacity) had been substantially derated, compared to units less than 20 years of age. The NCC concluded that: "If all existing conditions resulting in a derating could be addressed, approximately 20,000 MWs of increased capacity could be obtained from regaining lost capacity due to unit deratings." The NCC further stated that: "These approaches and techniques could only be logically pursued by the facility owners if it was clearly understood that the increased availability and/or electrical output would not trigger New Source Review (NSR) and if repowering or construction of new clean coal technologies would be subject to the streamlined permitting authorized by the 1990 CAA Amendments."

6. NSR Impacts on Energy Efficiency Improvements

Electricity generators often have opportunities to improve their generating efficiency. One measure of such efficiency is the amount of electricity generated per amount of fuel consumed. The reduced cost of fuel per megawatt generated provides a strong economic incentive to make such improvements. On a megawatt basis, such changes also reduce pollution (though if a generator uses the more economical, upgraded unit more often as a result, total emissions can still increase). Another measure of efficiency is the amount of electricity generated per unit of emissions. EPA did not find any research specifically addressing how the NSR program impacts generators' ability to make these types of changes. However, a number of issues have been raised recently by industry in the context of specific projects.

One example is a case raised by Detroit Edison. The company proposed to replace and reconfigure the high-pressure section of two steam turbines at its Monroe Power Plant. The purpose of this proposed project was to upgrade energy efficiency. An upgrade of this nature is markedly different from the frequent, inexpensive, necessary, and incremental maintenance and replacement of deteriorated blades that is commonly practiced in the utility industry. For instance, past blade maintenance and replacement of only the deteriorated blades at Detroit Edison has never increased efficiency over the original design. Yet because this proposed project would result in substantially improved efficiency compared to the original design, EPA considered it a physical change under its NSR regulations, and if it were to result in a significant increase in emissions, the units would be subject to NSR. It has been asserted that this decision will lead to less investment in efficiency improvements as opposed to the normal replacement of the damaged blades. However, no specific information is available on how the costs of NSR (e.g.,

[53] National Coal Council, Increased Electricity Availability From Coal-fired Generation in the Near-Term, p.9, May 2001.

control technology, permitting expense, etc.) alter the economics of the project, or whether they make the project no longer economically attractive. Nor is information available regarding the extent to which this kind of project would or would not increase emissions.

Another example is combined heat and power (CHP) units, which can be used to replace existing industrial boilers. They can provide both steam to the industrial facility and electricity to the public. They emit significantly fewer emissions than the existing boilers they replace. Because of how NSR regulations define a single source, power companies assert that these facilities are not being brought on line in greater numbers. There is also the assertion that NSR may cause CHP operation for small plants (e.g., 15 MW or less capacity) to be uneconomic.. Absent the complicated NSR requirements, the companies claim that many older, higher emitting boilers would be replaced by these more efficient units. Again, no specific information is available on the relative effect of NSR on the overall viability of such projects.

The final example of how NSR allegedly hinders efficiency improvements in electrical generation is the use of foggers. Duke Power proposed a project that involved the installation of inlet air foggers on combustion turbines (CTs) at the Duke Power Lincoln Combustion Turbine Facility. Duke Power, which operates 16 simple cycle CTs at the Lincoln facility, proposed to install inlet air foggers on each CT to increase power output during periods of high ambient temperatures. Use of foggers allows combustion of additional fuel and, thus, greater power output at the same ambient temperature. Despite more fuel combustion, the possibility exists that nitrogen oxides emissions actually decrease when foggers are turned on. The project was considered a physical change under NSR regulations, and appropriate safeguards were required to ensure that the emissions did not significantly increase as a result of the change. It is claimed that this decision makes it harder to use the foggers and increase the output of existing units.

A May 2001 report by the National Coal Council [54] discussed the impact of regulatory policy on efficiency improvements at existing coal-fired power plants. The report stated, "EPA has further indicated that it will treat innovative component upgrades that increase efficiency or reliability without increasing a unit's pollution producing capacity as modifications as well. EPA's current approach to these projects strongly discourages utilities from undertaking them, due to the significant permitting delay and expense involved, along with the retrofit of expensive emission controls that are intended for new facilities. This is the greatest current barrier to increased efficiency at existing units." To support this conclusion, the NCC identified two EPA determinations, one involving Detroit Edison Company in May 2000 (discussed above), the other involving Sunflower Corporation in 1998, in which EPA ruled that improved, higher efficiency turbine blades could not be used to replace less efficient blades that had broken, without invoking new source review and associated costs for additional pollution controls.

III. Petroleum Refining Industry

1. Historical NSR Permitting Data

[54] National Coal Council, Increased Electricity Availability From Coal-fired Generation in the Near-Term, p.9, May 2001.

Helper Cooling Tower Bid Evaluation

	Marley			Hamon			CCT			Psychrometrics		
	Base	Option 1	Option 2	Base	Option 1	Option 2	Base	Option 1	Option 2	Base	Option 1	Option 2
Model No.	F488-4.0-04B	F488-4.0-06B	F488-4.0-04	4CFF48	4CFF48	4CFF48	PCS-4-4848-200P5	No Bid	4-PCS-5250-250P6	CFF-429634-2I-33	CFF-429630-2I-36	CFF-609633-2I-36
Tower Width	102	102	54	96	96	96	96		101	96	96	96
Tower Length	96.7	147.3	192.7	96	96	96	96		105	84	84	120
Tower Height	50.8	50.3	40.84	39	43	43	40		42.625	40	36	39
Number of Cells	4	6	4	4	4	4	4		4	2 (2 fans/cell)	2 (2 fans/cell)	2 (2 fans/cell)
Static Lift	25.1	24.61	15.2	21.5	31.5	25.5	21.775		23.975	23.5	20	20
Pump Head	29.93	29.1	17.64	22	32	26	25.775		27.975	28.5	25	25
Air Inlet Height	18.5	18	8.5	9.9	19.9	12.6	12.9		14.1	14	11	11
Flow Rate	50,000	50,000	50,000	50,000	50,000	50,000	50,000		60,000	50,000	50,000	50,000
Guaranteed Drift	0.001	0.001	0.001	0.001	0.001	0.001	0.005		0.005	0.005	0.005	0.005
Fan Horsepower	200	200	200	150	200	200	200		250	200	200	200
Fill Area	8904	13360	8904	9216	9216	9216	9216		10400	7661	7661	10944
Fill Height	4	4	4	5	5	5	5		6	5	5	5
L/G	1.487	0.849	1.442	1.71	1.73	1.72	1.5512		1.8873	1.46	1.444	1.49
Hot Temperature	111.6	103.9	111.6	111.6	111.6	110.5	111.6		110.5	111.6	111.6	110.5
Cold Temperature	82	74.3	82	82	82	82	82		82	82	82	82
Fits Well on Site (Bad 1-10 Good)	10	7	5	10	10	10	10		10	10	10	10
Schedule	Days After Award	Days After Award	Days After Award	Days After Award	Days After Award	Days After Award	Days After Award		Days After Award	Days After Award	Days After Award	Days After Award
Submittal of Certified Drawings	14	14	14	28	28	28	10		10	10	10	10
Submittal of Foundation Design Loads	14	14	14	28	28	28	18		18	10	10	10
Begin Delivery of Materials	156	156	156	154	154	154	116		116	120	120	120
Complete Delivery of Materials	168	168	168	196	196	196	158		158	140	140	140
Bid Amount												
Bid Cost	$1,588,200	$2,363,400	$1,509,300	$1,623,245	$1,735,250	$1,713,600	$2,086,000		$2,386,000	$1,819,958	$1,914,530	$2,429,928
Field Erection Deduct	$0	$0	$0	$0	$0	$0	$420,000		$454,000	$150,813	$147,615	$195,439
Fire Protection	$72,200	$92,100	$72,200	$114,140	$114,140	$114,140	$152,529		$170,747	$55,672	$55,672	$72,952
Field Erection Supervision	$56,000	$72,000	$56,000	$50,280	$50,280	$50,280	$43,675		$43,675	$50,000	$50,000	$50,000
Adjustments and Options												
Above Ground Piping	$48,320	$48,320	$48,320	$48,320	$48,320	$48,320	$0		$0	$48,320	$48,320	$58,650
Cable Tray	$50,300	$65,200	$50,300	$50,300	$50,300	$50,300	$50,300		$50,300	$50,300	$50,300	$50,300
Maintenance Derrick	$0	$0	$0	$0	$0	$0	$15,000		$15,000	$23,770	$23,770	$23,770
High Efficiency Drift Eliminators	$0	$0	$0	$0	$0	$0	$19,200		$21,700	$0	$0	$0
Total Adjusted Cost for Materials W/O Fire Protection	$1,586,820	$2,476,920	$1,607,920	$1,721,865	$1,833,870	$1,812,220	$1,750,500	$0	$2,019,000	$1,791,535	$1,869,305	$2,367,209
Total Adjusted Cost for Materials with Fire Protection	$1,759,020	$2,569,020	$1,680,120	$1,836,005	$1,948,010	$1,926,360	$1,903,029	$0	$2,189,747	$1,847,207	$1,944,977	$2,440,161
Adjusted Materials/Area of Fill ($/Ft2)	$189.45	$185.40	$180.58	$186.83	$198.99	$196.64	$189.94		$194.13	$233.65	$246.61	$216.30
Basin Width	107	106.7	54	104	104	104	107		112	102	102	102
Basin Length	97	149.8	193	104	104	104	107		116	90	90	126
Estimated Concrete Cu Yds	418	634	426	434	434	434	459	0	518	371	371	513

Notes:

1. Option 2 is a rectilinear (in-line) design that would extend into the path of the existing duct bank.

2. The differential heat rate economics of going to Option 1 were evaluated and the extra cost could not be justified.

Notes:

1. Base Option requires 33 Feet between Unit 1 and Unit 2 towers. This would interfere with the duct bank.

2. Option 1 exceeds the pump head specified. This option is not feasible.

3. Option 2 requires 38 feet between Unit 1 and Unit 2 towers.

Notes:

1. Ceramic quoted a moveable platform for fan access instead of fixed. Added $15,000 to compensate.

2. Method of construction for Ceramic's towers would require less construction time than competitors. This would save approx. $100,000.

3. Low inlet air height is of some concern.

Notes:

1. Psychrometrics did not include any fan access, added $23,170 to compensate.

2. Base tower is the smallest of the four vendors offered.

3. PSI's design is different from the other vendors. They have *two fans per cell instead of one. This is not equivalent from* operational standpoint. Half of tower would be removed from service with the loss of a fan instead of just one fourth.